OWNER'S OPERATING & MAINTENANCE MANUAL

UNINTERRUPTIBLE POWER SYSTEM

GLOBAL SN SERIES UPS
1,000VA THROUGH 2,000VA

MODELS:
SN1000
SN1250
SN1500
SN2000

Manufactured by
CLARY CORPORATION
THE CONTINUOUS POWER COMPANY

Sold Exclusively Through
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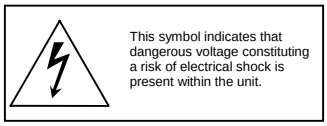
INTRODUCTION

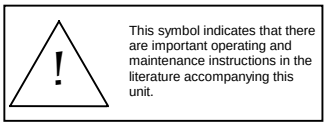
Congratulations! You have selected the highest quality protection for your *continuous power* needs. This unit offers a quiet and compact package with superior performance you can depend on. You now own a **SN Series** *Continuous* Power System (CPS) which is an all *Digital Technology* product manufactured by Clary Corporation, the first name in uninterruptible power system (UPS) reliability. The *Continuous Power System* is the highest order in the hierarchy of UPS products. When power problems occur, there can be no compromising the reliability of your power solution. The **SN Series** *Continuous* Power System is your complete power solution.

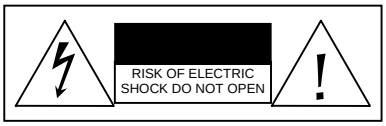
This Users Manual is provided with your new **SN Series** unit. It will enhance your understanding of the product and its functions. Read this handbook carefully in the order it is presented prior to operating your unit. This will save you time and effort in your installation and application. The illustrations will also familiarize you with this unit's operating modes and indications. Always operate the unit within the guidelines and specifications given to maximize the unit's efficiency and lifetime. Also, your understanding of the product is essential in providing you years of service for your *continuous power* requirements.

This unit has been manufactured and tested to meet specific safety standards. It meets UL and FCC requirements and complies with safety performance standards.

IMPORTANT SAFETY INSTRUCTIONS, SAVE THESE INSTRUCTIONS




This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



This manual contains important safety instructions that should be followed during installation and maintenance of the UPS and batteries. Be aware of the following symbols and their meaning as they appear throughout the manual:

This equipment generates and uses radio frequency energy and if not installed and used properly in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. All units in this manual have been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient the receiving antenna.**
- **Relocate the UPS with respect to the receiver.**
- **Move the UPS away from the receiver.**
- **Plug the UPS into a different outlet so that the UPS and receiver are on different branch circuits.**

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How To Identify and Resolve Radio-TV Interference Problems"
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004000003454.

TECHNICAL DESCRIPTION

The SN Series *Continuous* Power System (CPS) is a revolutionary new concept in total power protection and management. The SN Series is a microprocessor-based UPS that now allows the user to set most of the control feature parameters. By directly linking a personal computer to the SN Series RS232 port, frequency settings and operation, alarm signals, load switching, fan operation, etc. can all be programmed to meet specific application requirements.

The SN Series is a true on-line, continuous power UPS. In the tradition of Clary products, the SN Series generates the same high quality and proven reliability to provide the best power protection available for today's critical applications.

In keeping with state-of-the-art design, the power electronics are completely governed by an on-board microprocessor. Given the powerful memory capability of today's microcontrollers, this microprocessor has evolved the UPS into an all-in-one complete power distribution and monitoring center. Not only is your critical load insured of the most reliable and constant power available, but the user may now continuously track status of the supply components that keep the entire system operational. Production downtime can now be virtually eliminated by knowing exactly what patterns the supply utility power maintains and by knowing exactly the condition and life expectancy of the battery reserve.

Reference the block diagram for a simplified explanation of the system's operation. The AC utility source is connected to the power and micro-electronics when the input switch is closed. The input line is filtered, power factor corrected and rectified for enhanced performance without disturbing other equipment that may share the same utility circuit. In ***SN*** units, an input isolation transformer is added to accept a wide range of input voltages for global applications. Output transformers, SNMP adapters and many other options are available.

The microprocessor controls an *Inverter Generator* that produces a low harmonic, AC sinewave for continuous power applications.

When the input AC utility line fails, the battery circuit within this system takes over to ensure continuous power. Only after properly rated power is returned, does the microprocessor reconnect the input source back into the system.

The microprocessor is directly tied to an external RS232 connector port. This allows the user to monitor and even set some of the operating parameters. With a simple link to a personal computer using the SNConfig software program, you can actually view, on your monitor, the event history of the power distribution system with the **SN Series** unit as the central hub. More sophisticated users may implement the optional SNMP package to accomplish full *Network Power Management*.

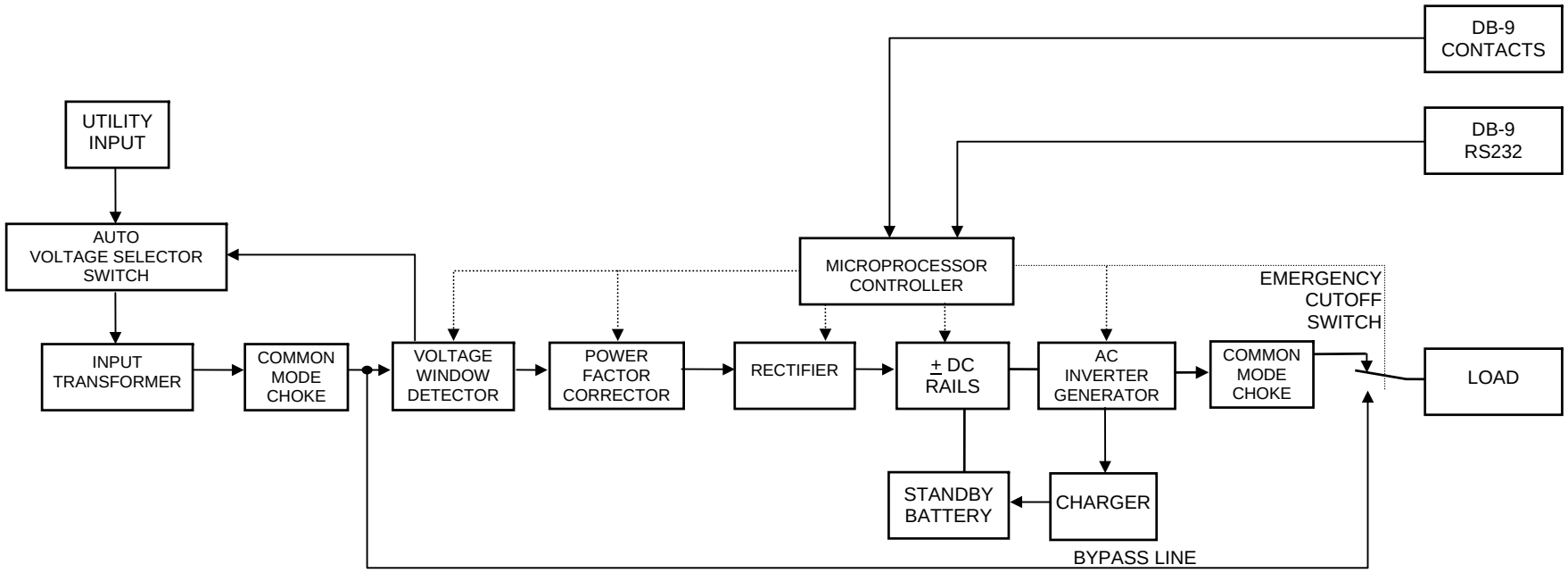


FIGURE 1: SN SERIES BLOCK DIAGRAM

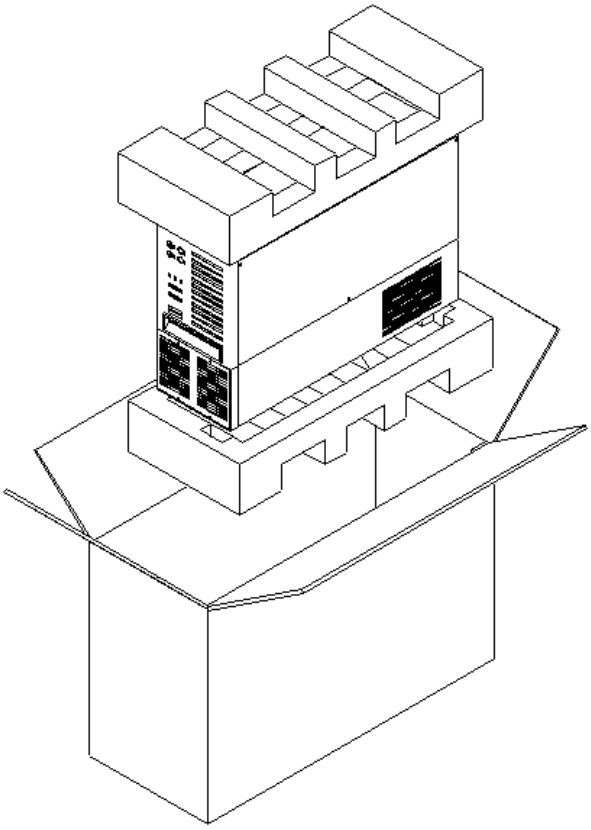
PACKAGING

Your UPS has been carefully packaged to withstand most abuse sustained during shipment. The packing material has been specifically designed to protect this system for normal handling, using most shipping carriers. If there is significant damage to the carton, or if there is any physical damage to this unit, report this to your carrier.

These units are encapsulated in a protective wrap that comes apart once the product is removed from the shipping carton. Save all packing material for future use.

Take extra precaution when removing or returning it to the box. Because this unit contains a battery, it can be quite heavy. Never attempt to unpackage the equipment unassisted.

The packaging also contains important information on use and care as well as valuable warranty information. Read all materials before storing this literature with your other valuable product documents.



PHYSICAL DESCRIPTION

This section will point out and illustrate the various indicators, functions and controls of the **SN Series** UPS. Pictured is the front view of the system, then followed by the rear view. The important attributes of the **SN Series** unit are numbered to assist you in locating them on your machine and also to fully explain its function and how it relates to system operation.

Numbers on the drawing will correspond to the operating component's name at the bottom with a brief identification. In the next section, a complete explanation of all numbered items will be enhanced to ensure you have a full understanding of the operation of this system.

Visual indicators used on the front panel are long lasting, very efficient, light emitting diodes (LED). When operating the push-button switches, always hold the switch in for at least two seconds to insure function confirmation. This feature has been implemented into the system design to avoid inadvertent operation of any of the user-available functions.

The rear panel has been engineered with the user's multiple applications in mind. In some models, two of the output receptacles have been rotated to allow attachment of a plug-in transformer without hanging over the back of the unit or interfering with another outlet. The outputs can be switched on or off.

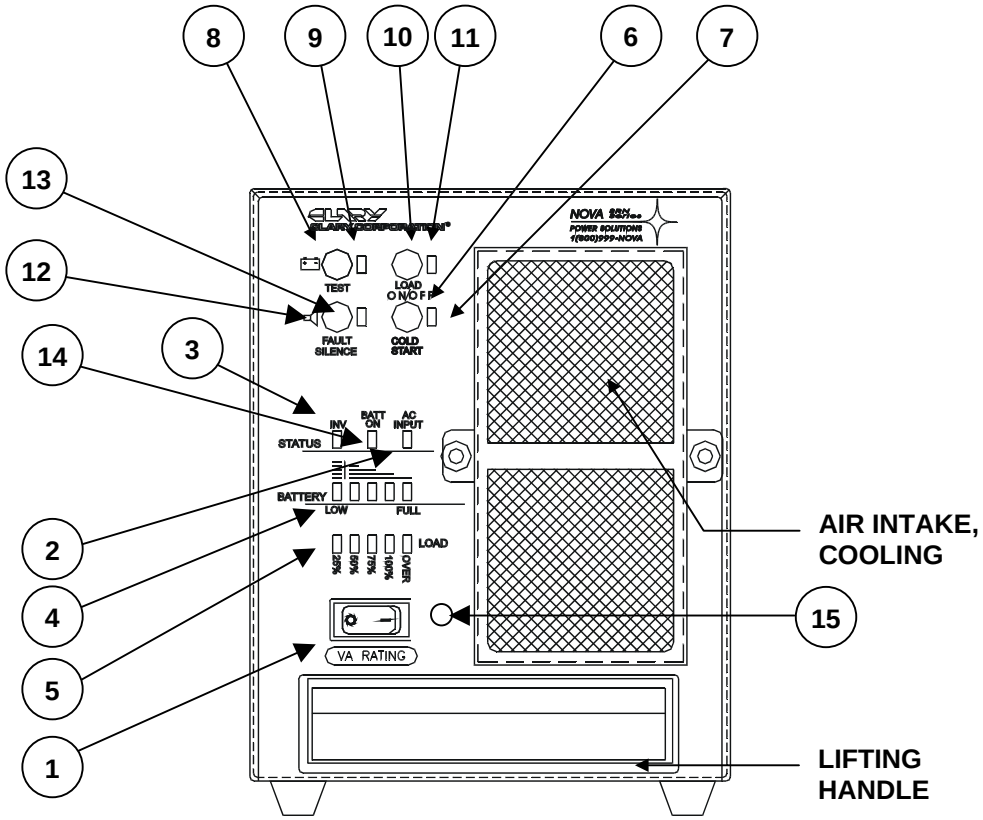


FIGURE 2: FRONT VIEW, SN1000

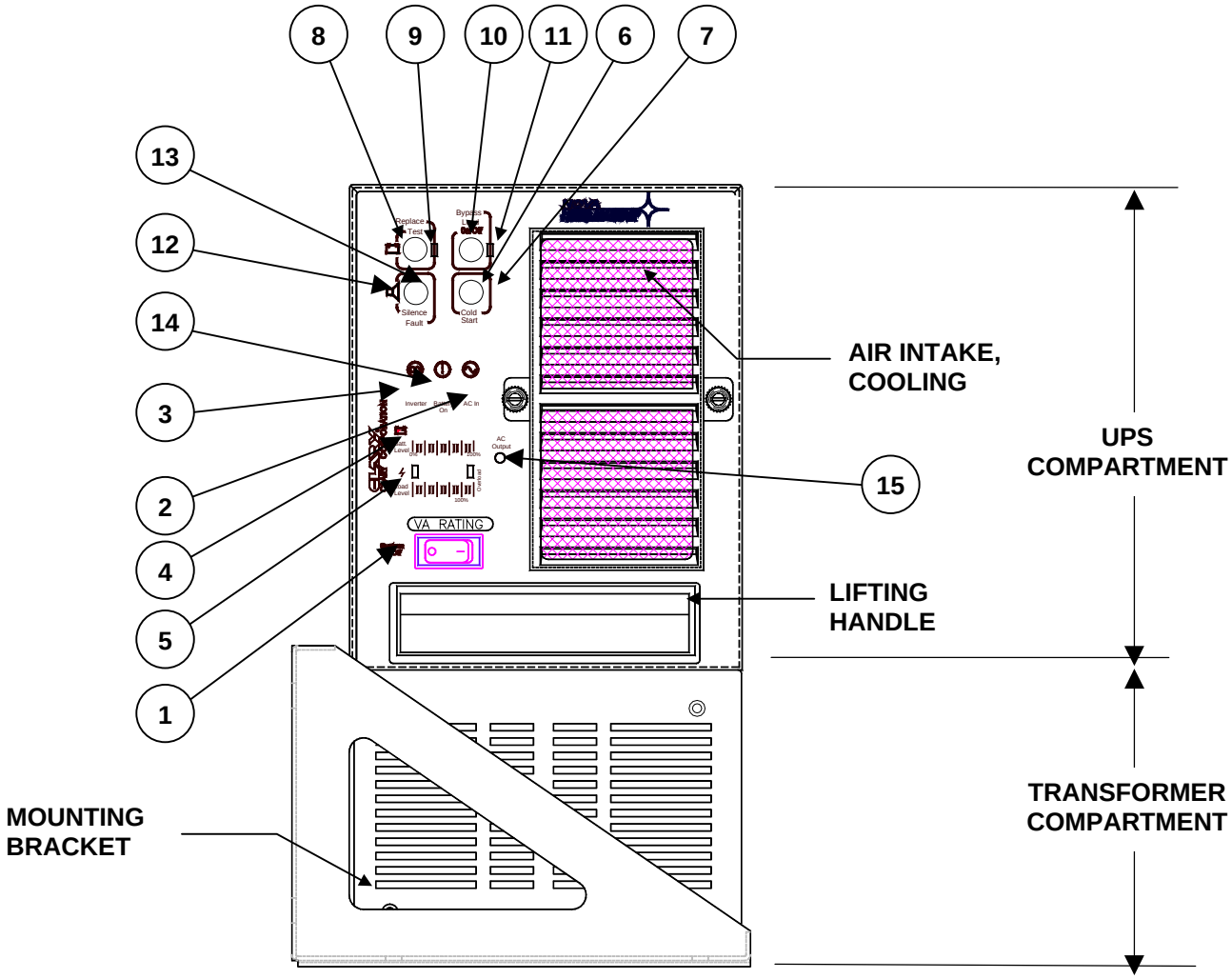


FIGURE 3: FRONT VIEW, SN2000

Global Front Panel Callouts

1 System On/Off switch
2 AC In - Input line indicator
3 Inverter - Inverter operating indicator
4 Battery Level - Charge/discharge indicators
5 Load Level - Output capacity indicators
6 Cold Start - DC start switch
7 Cold start acknowledge indicator
8 Test switch
9 Test indicator
10 Load On/Off switch
11 Bypass indicator
12 Alarm Silence switch
13 Fault indicator
14 Battery On indicator
15 AC output indicator

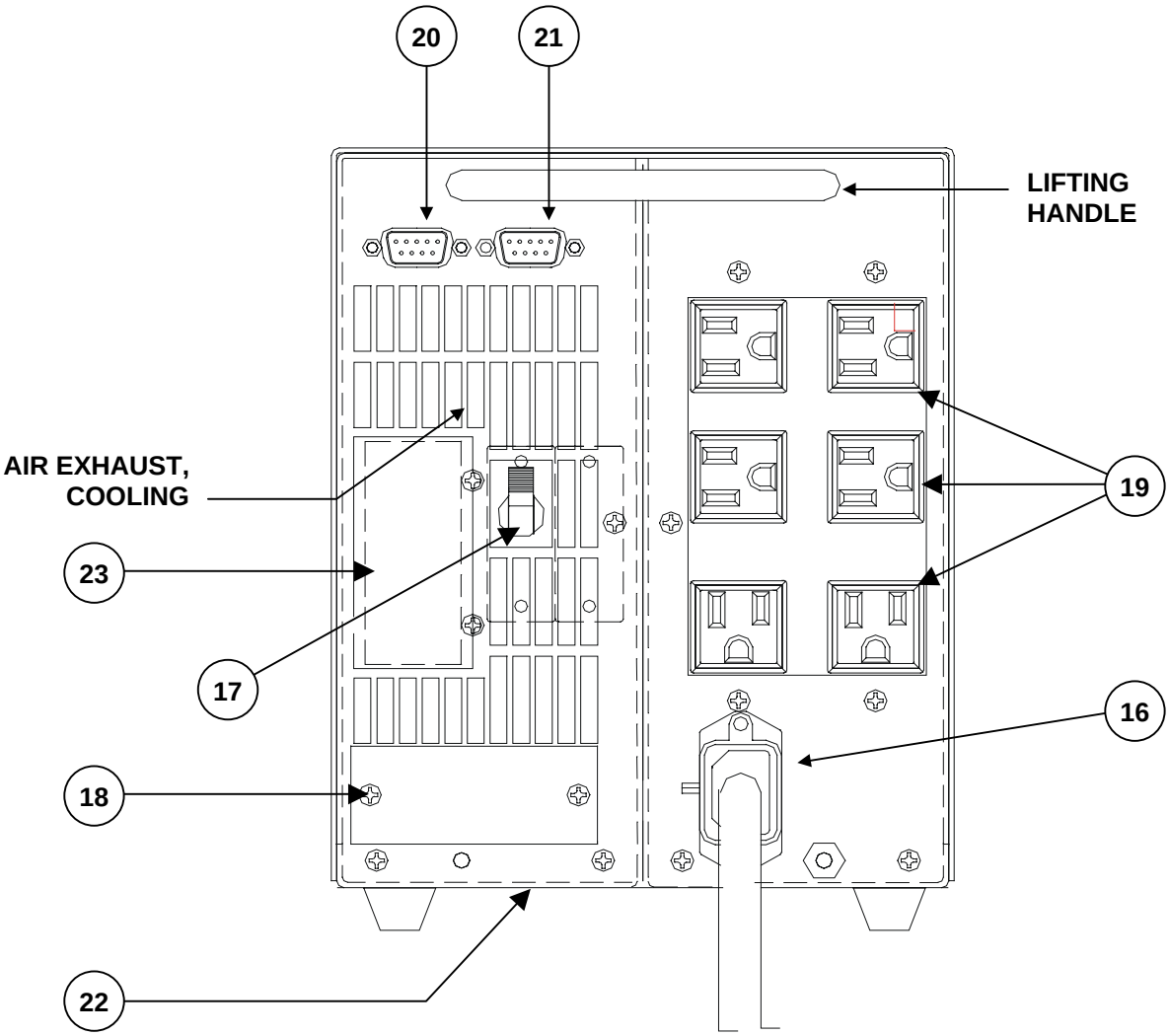


FIGURE 4: REAR VIEW, SN1000

Global rear panel callouts

16 INPUT – AC line cord inlet with lockdown
17 INPUT- Dual pole circuit breaker
18 DC INPUT - Auxiliary battery connector
19 SYSTEM OUTPUT-120VAC
20 SIGNAL - Open-collector signal contacts
21 RS232 - Computer communications signals
22 IDENTIFICATION LABEL
23 SNMP – (Optional) Slot for network monitoring

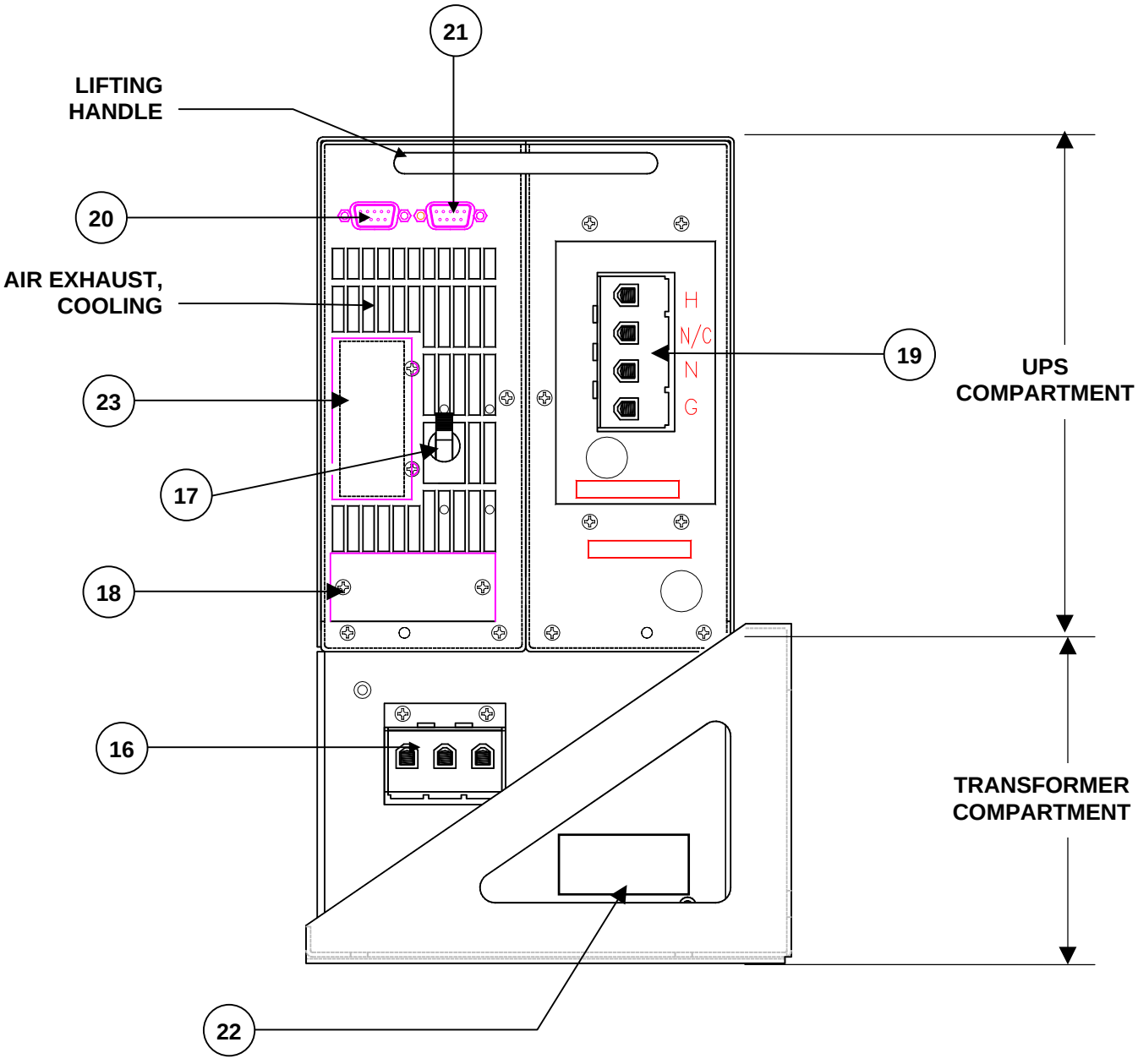


FIGURE 5: REAR VIEW, SN2000HT

Global Rear Panel Callouts

16 INPUT – Terminal Block 3 position
17 INPUT BREAKER - Dual pole circuit breaker
18 DC input - Auxiliary battery connector
19 OUTPUT - Terminal block 4 position
20 Signal - Open-collector signal contacts
21 RS232 - Computer communications signals
22 Identification label
23 SNMP – (Optional) Slot for network monitoring

SUMMARY OF INDICATORS AND CONTROLS

INPUT POWER - This is system input AC power protection and interruption for both hot and neutral lines. This is a circuit breaker that if tripped, unit operation will continue on battery reserve. This circuit breaker is rated at 20A.

SYSTEM ON/OFF - This is system input enable switch. This switch is used to power down the system. This switch must be in the ON position in order to AC or DC start the UPS.

LOAD - Four green L.E.D.s and one red OVERLOAD L.E.D. that illuminate to update status of the amount of load the INVERTER is powering at the UPS system output. Each green L.E.D. represents approximately 25% of full load. As more load is added to the UPS, the L.E.D.s will sequentially turn **"ON"** until the red L.E.D. comes **"ON"**. This indicates an OVERLOAD situation and the system will discontinue operation shortly.

BATTERY - Four green L.E.D.s and one green LOW BATTERY L.E.D. that illuminate to update status of the battery energy available during a power outage. Each green L.E.D. represents approximately 20% of battery reserve power available. As battery discharge continues, the L.E.D.s will sequentially turn **"OFF"** until the last L.E.D. starts to flash. This indicates a LOW BATTERY situation and the system will discontinue operation shortly. Once utility power is returned to the system, this bar graph will show an approximate battery state as it reaches full charge.

AC IN - A green L.E.D. that is illuminated when both the **INPUT POWER** Circuit Breaker and the **SYSTEM ON/OFF** switch are closed and there is utility power present at the input of the system.

BATTERY ON - A red L.E.D. that is illuminated when the AC input is interrupted to the power electronics either externally or internally from the microprocessor due to an out-of-range situation. The output load is then supported entirely by battery energy through INVERTER operation.

INV - A green L.E.D. that illuminates when the INVERTER generator is operating and available to deliver power to the system output.

COLD START - This is a momentary, two position push button keyswitch. If no AC utility voltage is available, it may still be a requirement to initialize some equipment. When this switch is pressed in for at least two seconds, the system will start up on battery power. The **SYSTEM ON/OFF** Switch must be in the ON position for this function to operate. The green L.E.D. above this switch will light only while the switch is held in.

LOAD ON/OFF - This is a momentary, two-position push button keyswitch. When the system initially powers up for the first time no INVERTER generator power will be present at the output load receptacles at the rear panel. Once this switch is pressed in for at least two seconds, output power will then be enabled to the rear panel outlets. If the system should be powered down for any reason other than with the **SYSTEM ON/OFF** Switch, the output state of these outlets will be remembered by the internal microprocessor and the UPS will start up with the output in the state it was last left. The output neon lamp, in the center of the panel, will light when the output has been enabled.

BYPASS - A red L.E.D. above the **AC OUTPUT** Switch will light to indicate when the system output is operating in the filtered, emergency BYPASS mode. This is an unprotected power source that will not support the load in the event of a power failure.

SILENCE - This is a momentary, two position push button keyswitch. During a system *FAULT* or power failure, an audible alarm will be present. If a *FAULT* condition occurs, the red L.E.D. above this switch will light. Once this switch is pressed in for at least two seconds, the audible alarm will be silenced. The L.E.D. above the switch will remain unchanged.

TEST - This is a momentary, two position push button keyswitch. Battery condition is vital to the UPS performance, particularly during a power outage. During normal operation and if the Battery Bar Graph shows the battery at a full charge, this function switch may be used. By pressing this switch in for at least two seconds, a battery acceptance diagnostic will be run by the internal microprocessor. If it has been discovered that the battery is excessively fatigued, the red L.E.D. above this switch will light advising the user to replace the internal battery or DC supply. The system will run this test on its own approximately every 24 hours.

AC OUTPUT - A green neon lamp that will light to indicate output power is present at the load receptacles.

OUTPUT - A four (4) position terminal block is provided for the UPS output connection. Continuous power is provided here and is monitored by the **LOAD** L.E.D.s as long as the INVERTER is functioning. The **LOAD ON/OFF** Switch must be enabled for power to be present here. The output neon lamp, in the center of the panel, will be lit when power is available.

SIGNAL - DB-9 subminiature female connectors provided for intelligent computer monitoring systems. See SIGNALS AND INTERFACING Section for specific pin-outs. The top right connector is the RS232, communications port. The other connector has open-collector signal contacts that generate a low state during *AC Input fail, low battery* and *UPS on.*

INPUT – A three (3) position terminal block is provided for the UPS input connection.

DC INPUT - An interface connector provided for additional, external battery connections. Additional batteries may be added to increase load run times during a utility power failure.

SNMP INTERFACE - (OPTIONAL) An add-on card that provides sophisticated system network management protocol. Direct hook-up is via an RJ45 or BNC connector.

INSTALLATION

If the unit is to be stored, it is recommended to refresh the internal battery at least once every 90 days. To do this, plug the system in, position the power On/Off switch to "**ON**", press and hold (at least two seconds) the Load On/Off Switch. Allow the unit to run for at least 24 hours.

The **SN** unit is designed for installation in a protected environment. Some important points to consider when positioning a unit for operation:

- ☛A properly rated (preferably dedicated) outlet is accessible for the six-foot power cord, supplied with the unit. It is not recommended to modify the supplied cord in any way nor should an extension cord of any kind be used.
- ☛The cord paths in the system installation should remain clear of foot traffic or anything else that may disturb permanent connection.
- ☛The installation site should maintain an ambient air temperature of less than 140^{o}F (60^{o}C). When the environment for the system remains cooler during operation, there is less stress on the batteries and the internal electronics.
- ☛The air inlets, vents and fan should not be obstructed or blocked in any way. The more breathing space the system has, the cooler it operates.
- ☛The air should remain free from excessive dust and chemical fumes.

Once a location has been selected and the unit is installed, it is ready for operation.

Allow at least 8 hours, after the system is first installed, to fully charge the internal battery to a maximum state.

OPERATION

ONce the system has been properly installed, it is ready to operate. The following procedures will explain how to start-up the system while plugged into rated electrical power.

Normal Operation on AC Start-Up:

⇒ Be sure the power cord is plugged into an appropriately rated outlet.

⇒ Activate the **INPUT ON/OFF** Circuit Breaker to the **"ON"** position.

⇒ Activate the **SYSTEM ON/OFF** Switch to the **"ON"** position.

The system will go through a diagnostic test routine and test all the L.E.D.s.

⇒ The green **AC INPUT** light will flash several times before it illuminates steady state.

⇒ At least four green **BATTERY** lights illuminate.

⇒ The audible alarm will sound a short burst.

⇒ Push and hold in the **AC OUTPUT ON/OFF** Switch for at least two seconds.

⇒ The **AC OUTPUT** neon indicator, in the center of the panel, will illuminate indicating output power is available at the rear panel outlets and the Inverter is operating.

Battery Test Operation:

Switch the **INPUT ON/OFF** Circuit Breaker **"OFF"**. This will simulate a power loss to test battery operation.

⇒ The green **AC INPUT** light will flash every two to three seconds.

⇒ The red **BATTERY ON** light illuminates.

⇒ An intermittent audible alarm will sound. (The **SILENCE** Switch may be operated at this time, it must be held in for at least 2 seconds to quiet the alarm.)

⇒ As battery discharge continues in this condition, the five green **BATTERY** L.E.D.s will start to shut off. Each light represents approximately 20% of the battery reserve available. If this were to continue until all four lights shut off, the last green light will flash, indicating that a LOW BATTERY situation is present and system shutdown is imminent. The intermittent alarm will become continuous at this point. The UPS will automatically shut itself off to avoid excessive battery discharge within the next two minutes. When power returns, normal operation of the UPS resumes without any operator adjustment.

The duration of actual battery backup time and the LOW BATTERY condition varies depending on the amount of load, charge on the battery, and condition of the battery. The condition of the battery may be checked provided two conditions are satisfied:

1. AC power is present at the input of the unit.
2. The battery is fully charged.

To check the battery:

⇒ Push and hold the **TEST** switch in for at least two seconds.

⇒ The red **REPLACE** light will flash.

⇒ The red **BATTERY** light will light.

The microprocessor will run a battery diagnostic check.

⇒ The audible alarm will sound after the test.

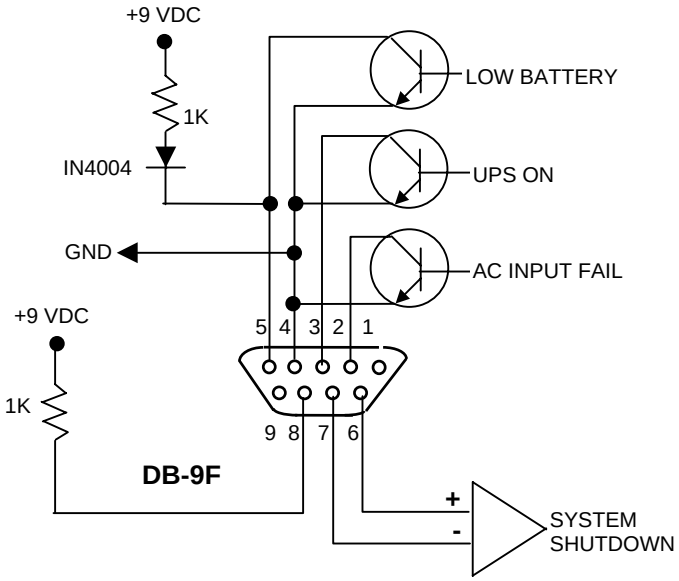
⇒ The red **BATTERY** light will turn off.

SIGNALS AND INTERFACING

The open-collector signal outputs can be converted to dry contact closures, as an option. Below is the pin out of the two connectors with their default assignments.

SIGNAL: OPEN-COLLECTOR CONNECTOR

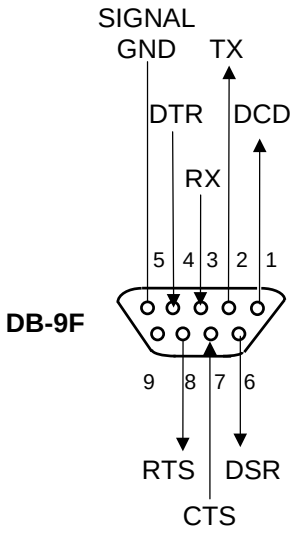
2- AC INPUT FAIL
3- UPS ON
4- GROUND
5- LOW BATTERY
6- + UPS SHUTDOWN
7- - UPS SHUTDOWN
8- + 9VDC



SIGNAL: OPEN-COLLECTOR CONTACT CONNECTOR

RS232 CONNECTOR

1- DCD
2- TX
3- RX
4- DTR
5- SIGNAL GROUND
6- DSR
7- CTS
8- RTS



RS232 CONNECTOR

CLARY CORPORATION

THE CONTINUOUS POWER COMPANY

SPECIFICATIONS

ELECTRICAL	
Input	
Voltage (Auto-selectable)	120VAC +10%, -20% (without Battery discharge)
Power Factor Corrected	*IAW* MIL STD. 1399 Sec. 300
Frequency	45 to 65Hz
Current	See Model Selection Guide
Output	
Voltage	120VAC ± 3%
Frequency	50Hz / 60Hz (software select) Line Sync (software select)
Current	See Model Selection Guide
Crest Factor Ratio (Non-linear load and less than 5% THD) Typical	@50% Load Up to 4.8:1 @75% Load Up to 3.2:1 @100% Load Up to 2.4:1
Total Harmonic Distortion (THD)	3% Typ; 5% Max. (@100% Non-linear load)
Dynamic Response	±4% for 100% Step Load Change, 0.5 Millisecond Recovery Time
Overload	110% for 10 Minutes; 200% for 50 Milliseconds
Efficiency (UPS)	88% Typical
Battery Back-up	See Model Selection Guide
UPS Protection	Input and Output Short Circuit; Input and Output Overload; Excessive Battery Discharge

ENVIRONMENTAL	
Operating Temperature	32°F to 140°F (0°C to 60°C)
Humidity	0% to 95% Non-condensing
Altitude	Sea Level to 10,000 Feet
Audible Noise	39-42 dBA at Five Feet

MECHANICAL	
Input Terminal Block	3 Position H, N and Ground
Output Terminal Block	4 Position H, NC, N and Ground
Cooling	Low Velocity, Temperature Controlled Reversible Forced Air
Dimensions	See Model Selection Guide
Weight	See Model Selection Guide

DESIGN	
Standard Features	Power Factor Corrected, Digital Regenerative™ On-Line, Sinewave Inverter Powers Load Continuously Extended Brownout Protection Designed for Non-linear Loads Continuous Operation on -20%,+12% Line Automatic Bypass RS232 Data Interface Software Selectable Output Frequency AC Output Switch Auxiliary Battery Connector Optional SNMP Interface
Specifications	UL Design FCC Class A IEEE 587/ANSI C62.41
MTBF	In Excess of 100,000 Hours
Typical Recharge Time to 85% Capacity at 100% Load	8 Hours

CONTROLS AND INDICATORS	
Visual Indicators Sequenced LEDs Single LED	 Battery Level, Load Level AC Input, Inverter On, Fault Fault Silent, AC Output, Cold Start, Replace Battery
Front Panel Controls	Power On, Cold Start Fault Silence, Battery Test AC Output On/Off
Audible Alarms	Utility Interrupt, Inverter Failure Overload, Low Battery
RS232 Data Interface (DB-9F)	Full Interactive, Remote Computer Monitoring and Control of UPS Functions. Compatible with Systems Enhancement UPS Monitor & Control Software
Open-Collector (DB-9F)	Allows Alarm Function Monitoring
Optional SNMP Interface (RJ45)	Allows Full Control and Monitoring Over Network Connection.

Specifications subject to change without notice. 12/2003

MODEL SELECTION GUIDE

DESCRIPTION	MODEL NUMBER			
	SN1000	**SN1250**	**SN1500**	**SN2000**
Nominal VA (Max Watts)	1000 (700)	1250 (875)	1500 (1050)	2000 (1400)
Input Current Amps (@120VAC)	7.2	8.8	10.7	14.3
Output Current Amps	8.3	10.4	12.5	16.7
Input Plug (Standard) NEMA Type	5-15P	5-15P	5-15P	5-20P
Battery Backup Time Minutes **@100%/@50% Load**	5/17	7/21	5/17	5/18
Weight lbs(kg)	55 (25)	80 (36)	80 (36)	100 (45)
Dimensions HxWxD in(cm)	9.1(23) x 6.9(17.5) x 21(53)	14.1(36) x 6.9(17.5) x 21(53)		

CARE AND MAINTENANCE

This device is designed to be maintenance-free. It can be cleaned with a damp cloth or nonabrasive cleanser.

WARNING: Do not use ACETONE-BASE cleaning solutions. Keep cleaning solutions out of the electrical receptacles on this device.

Be sure filters, vents and fans are kept free from accumulation of dust, dirt or lint. Below is a simple maintenance schedule that will assist you in keeping the system at its peak level of performance and also minimizing potential premature failures.

Your system contains sealed maintenance-free lead acid batteries. When situated in the proper environment, with the proper charging and limited cycling, these batteries are very safe and can last many years.

WARNING: Never attempt to service batteries. High voltage exists within the unit which could cause electrical shock. Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries. When replacing batteries, use the same number and type batteries.

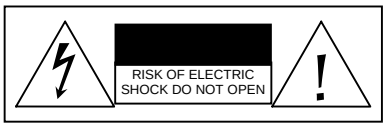
CAUTION - Do not dispose of battery or batteries in a fire. The battery may explode.

CAUTION - Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

CAUTION - A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries.

1. Remove watches, rings, or other metal objects.
2. Use tools with insulated handles.
3. Wear rubber gloves and boots.
4. Do not lay tools or metal parts on top of batteries.
5. Disconnect the charging source prior to connecting or disconnecting battery terminals.
6. Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source of ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock will be reduced if such grounds are removed during installation and maintenance.

The internal rechargeable battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with the factory for details in your area for recycling options or proper disposal.



RECOMMENDED PREVENTATIVE MAINTENANCE SCHEDULE			
TIME	**TASK**	**TOOLS REQ'D**	**INITIAL☑**
Every 6 mo.	Test battery operation, check back-up time	None	
Every 12 mo.	Thoroughly clean unit	Vacuum, brush	
Every 42 mo.	Replace battery	3/8 Hex Nut Driver	
Every 72 mo.	Replace cooling fan	Screwdriver	
USER REPLACEABLE PARTS			
PART #	**DESCRIPTION**	**TOOLS REQ'D**	**INITIAL☑**
362-8495	Fuse	None	
480-11894-4	Air Filter	None	

SERVICE AND REPAIR

Your **SN Series** UPS is backed by one of the finest customer service teams available. Write or call them at any time to obtain more information about your unit.

Clary Corporation
1960 S. Walker Avenue
Monrovia, CA 91016
1-800-551-6111

If a problem should occur, it is important that you obtain a Return Material Authorization (RMA) number from the Service Department to process any unit returned to the factory. In consulting the factory, always have the unit model number and serial number at hand. This information is located on the identification label and is essential in retrieving your unit's performance and history record.

The RMA number issued to you should appear on the outside of the carton, if the unit is returned, or on any correspondence regarding your unit. When shipping a unit back to the factory, try to use the original packing container and shipping materials. The Service Department cannot take responsibility for any unit damaged in return shipment. All units must be returned prepaid to:

Clary Corporation
SN Service Center
1960 S. Walker Avenue
Monrovia, CA 91016

WARRANTY

1. TIME AND SCOPE OF WARRANTY:

1.1 Clary Corporation hereby warrants all equipment shipped under this Agreement to be free from defective components and workmanship for a period of 2 years following date of shipment. Accidental damage, misuse or normal wear shall not be construed as a defect.

1.2 The date of shipment as used herein will be the date on Clary's Bill of Lading. If no Bill of Lading is issued, the date of shipment shall be shown on seller's shipping document.

1.3 No provision of this warranty shall cover equipment, which has been altered or modified from the original specifications to which same was manufactured, unless authorized in writing.

2. LIMITS OF "IN-WARRANTY" SERVICE LIABILITY

2.1 Clary is obligated for two (2) years following date of shipment to replace any parts from equipment returned to the factory which, in the opinion of authorized Clary personnel, are found to have been defective (the term "factory" as used herein shall also include any field service centers which may be established by Clary). Clary is obligated for two (2) years following date of shipment to provide service and/or adjustments to equipment returned to the factory. Batteries are guaranteed for a period of one (1) year. The cost of shipping equipment to or from the factory is not covered under this warranty.

2.2 Equipment requiring in-warranty service must be returned to the factory with all transportation charges prepaid. Equipment must be clearly tagged stating the nature of the trouble experienced and the disposition of the equipment after repair. The equipment will be returned freight collect by Clary to the location specified via the best, least expensive carrier available, or via customer's shipping instructions.

2.3 The nature of certain equipment installations may be such that it would be impractical or technically infeasible to remove the Clary portion of the equipment from the customer's premises to the Clary factory. In such cases, and at the request of the buyer, Clary will perform such service as can be satisfactorily rendered at buyers location. When equipment startup is performed by Clary personnel, the buyer will be charged only for travel expenses incidental to the service call, provided that the warranty is applicable. When equipment startup is not performed by Clary personnel, travel time will also be charged.

2.4 During the in-warranty period, no service charges shall be payable by the buyer for service performed other than for service necessitated by accident, misuse, theft, abnormal line or source voltage fluctuations, abnormal conditions of operation, damage by the elements or damage resulting from adjustments, repairs, modifications made by other than Clary Authorized personnel, or the buyer's failure to reasonably maintain the equipment

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF BUYER SHALL BE LIMITED TO THOSE PROVIDED HEREIN. IN NO EVENT WILL SELLER BE LIABLE FOR COLLATERAL OR CONSEQUENTIAL DAMAGES. No person is authorized to assume in behalf of Clary any obligation or liability in connection with the sale, warranty or service policy of any products manufactured and/or marketed by Clary Corporation beyond the warranty description on the face hereof.

3.1 Clary Corporation reserves the right to make changes, additions. and/or improvements in its products without incurring any obligation to install them on its products previously sold.

SPARE PARTS LIST

LEVEL I

PART NO.	DESCRIPTION
121-11805	Fan Assembly-UPS
400-10796	Fan Assembly-Tranformer Assembly
370-11794	Battery 12V-5AH, Sealed Lead Acid
146-11843	Black Keycap
462-12334	Air Baffle
163-12558	SNMP Cover Plate
163-11891	Auxiliary Battery Connector Cover Plate
202-9264	Lockscrew Kit
361-9322	System Switch
362-8908	Circuit Breaker
363-11043	AC Output Lamp
362-8495	Fuse 15 Amp 250VAC
171-9519	Handle
120-12535-2	Filter Assembly

LEVEL II

PART NO.	DESCRIPTION
360-9307-4	Output Terminal Block (4 Position)
360-9307-3	Input Terminal Block (3 Position)
104-11827	Com 2-DB9 Cable Assembly
104-9431	Signal DB9 Cable Assembly
104-13130-2	Auxiliary Battery Cable Assembly
110-11736	Front Indicator / Control Assembly
XK2000-HT	Power and Control Board Set Assembly
341-12131	Input Isolation Transformer
120-13364	SNMP Cable Assembly (Optional)

CLARY®
The Continuous Power Company™

Addendum 171

SN2000HT(X)

INTERNAL HARD BYPASS

This UPS has an Internal Hard Bypass installed. The Internal Hard Bypass will route the utility power to the output if the UPS inverter power should fail or be turned off by the Load On/Off switch on the Front panel.. The Internal Hard Bypass is protected by the Input Circuit Breaker. See System Schematic 118-14052.

WARNING!

Whenever UPS has utility power on the input and Input Circuit Breaker is switched "ON", UPS Output Terminal Block will be "Live" even if UPS System Switch is turned Off.

Note: If Internal Hard Bypass is activated, UPS backup will not be available.